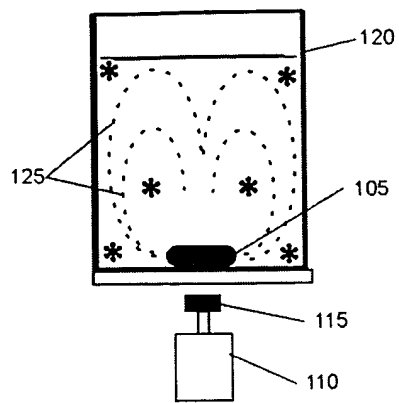
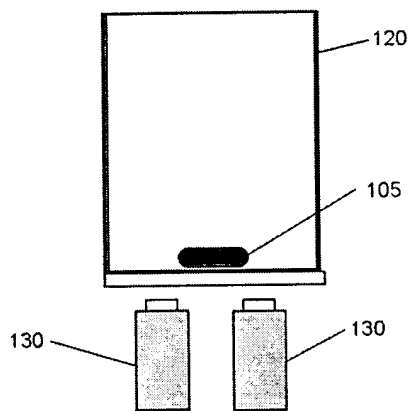


**FIGURE 1A
(PRIOR ART)**

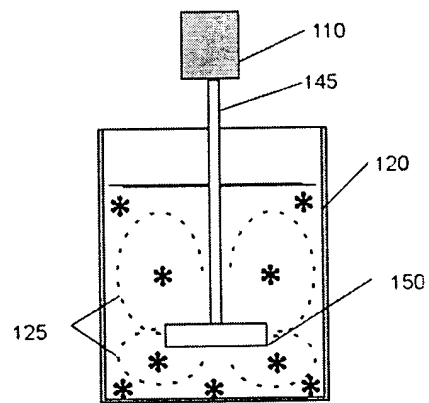


**FIGURE 1B
(PRIOR ART)**

*** AREAS OF INCOMPLETE STIRRING**



**FIGURE 1C
(PRIOR ART)**



**FIGURE 1D
(PRIOR ART)**

*** AREAS OF INCOMPLETE STIRRING**

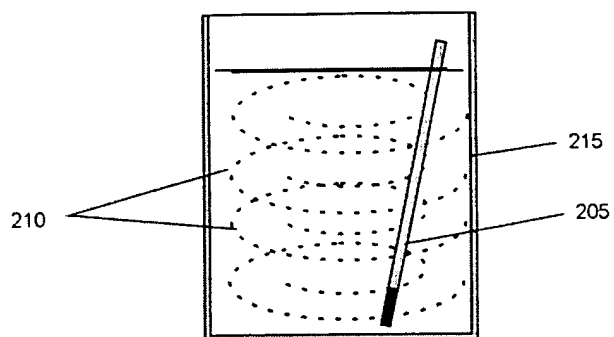


FIGURE 2A

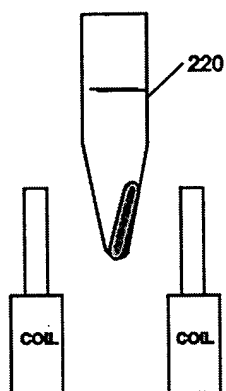


FIGURE 2B

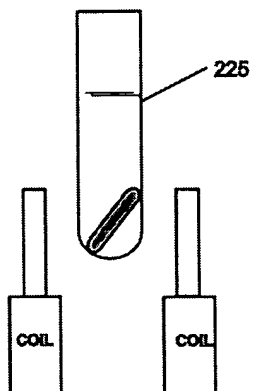


FIGURE 2C

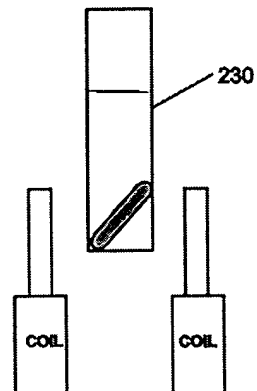


FIGURE 2D

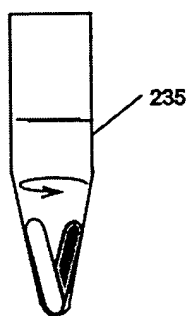


FIGURE 2E

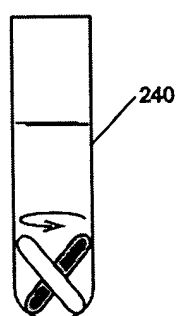


FIGURE 2F

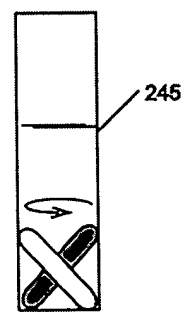


FIGURE 2G

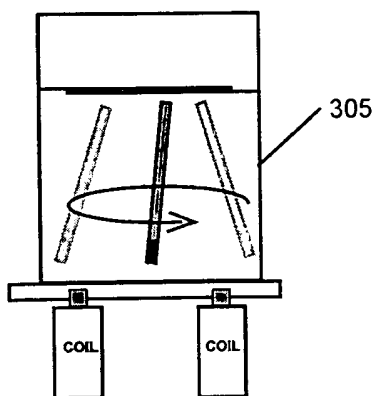


FIGURE 3A

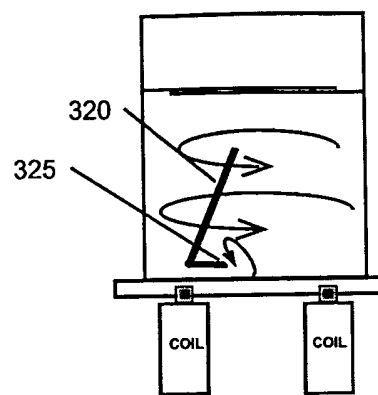


FIGURE 3C

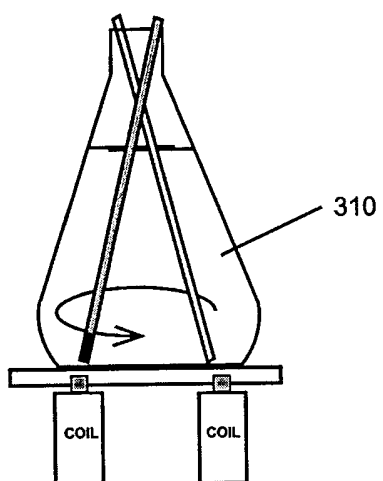


FIGURE 3B

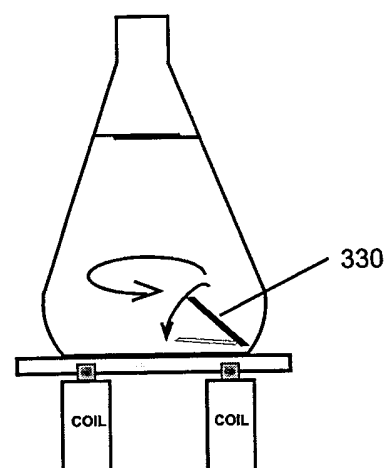


FIGURE 3D

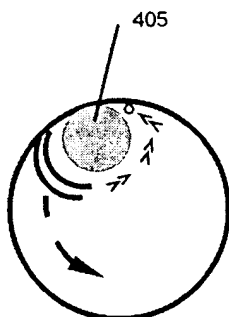


FIGURE 4A

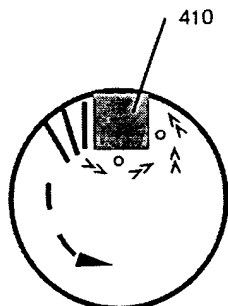


FIGURE 4B

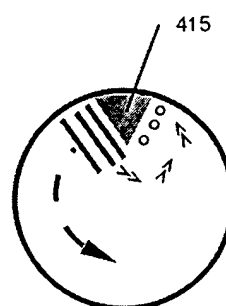


FIGURE 4C

SYMBOL KEY:

\\ FRONTAL WAVE

○ NEGATIVE PRESSURE

>> LIQUID FLOW

↻ BAR ROTATION

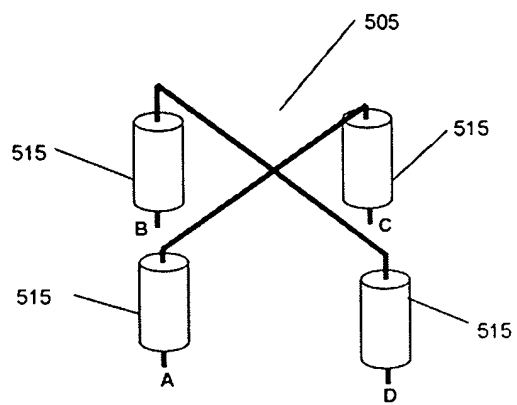


FIGURE 5A

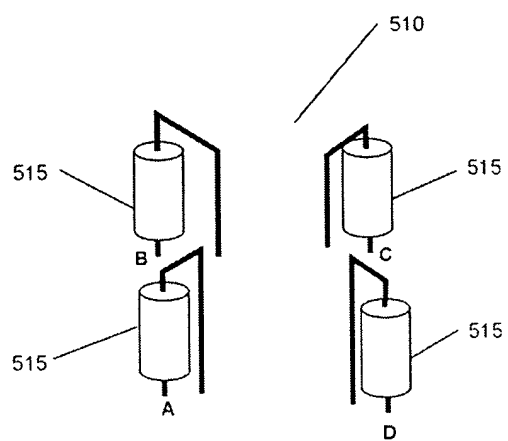


FIGURE 5B

In all configurations, coils A and C, B and D oppose each other.

Full Power, Single Step (centered magnet)

Rotation Angle	Coil A		Coil B		Coil C		Coil D	
0	+	-			-	+		
90			+	-			-	+
180	-	+			+	-		
270			-	+			+	-

FIGURE 6A

Full Power, Single Step (magnet along wall of vial)

Rotation Angle	Coil A		Coil B		Coil C		Coil D	
0	+	-						
90			+	-				
180					+	-		
270							+	-

FIGURE 6B

Full Power, Half Step (centered magnet)

Rotation Angle	Coil A		Coil B		Coil C		Coil D	
0	+	-			-	+		
45	+	-	+	-	-	+	-	+
90			+	-			-	+
135	-	+	+	-	+	-	-	+
180	-	+			+	-		
225	-	+	-	+	+	-	+	-
270			-	+			+	-
315	+	-	-	+	-	+	+	-

FIGURE 7A

Full Power, Half Step (magnet along wall of vial)

Rotation Angle	Coil A		Coil B		Coil C		Coil D	
0	+	-						
45	+	-	+	-				
90			+	-				
135			+	-	+	-		
180					+	-		
225					+	-	+	-
270							+	-
315	+	-					+	-

FIGURE 7B

Sinusoidal Drive (centered magnet)

Rotation Angle \emptyset	Coil A $\sin \emptyset$	Coil B $\sin (\emptyset - 90)$	Coil C $\sin (\emptyset - 180)$	Coil D $\sin (\emptyset - 270)$
0	0	Min	0	Max
45	.707	.707	-.707	.707
90	Max	0	Min	0
135	.707	.707	.707	-.707
180	0	Max	0	Min
215	-.707	.707	.707	.707
270	Min	0	Max	0
315	.707	-.707	.707	.707

Max = maximum positive drive level possible.

Min = maximum negative drive level possible.

FIGURE 8

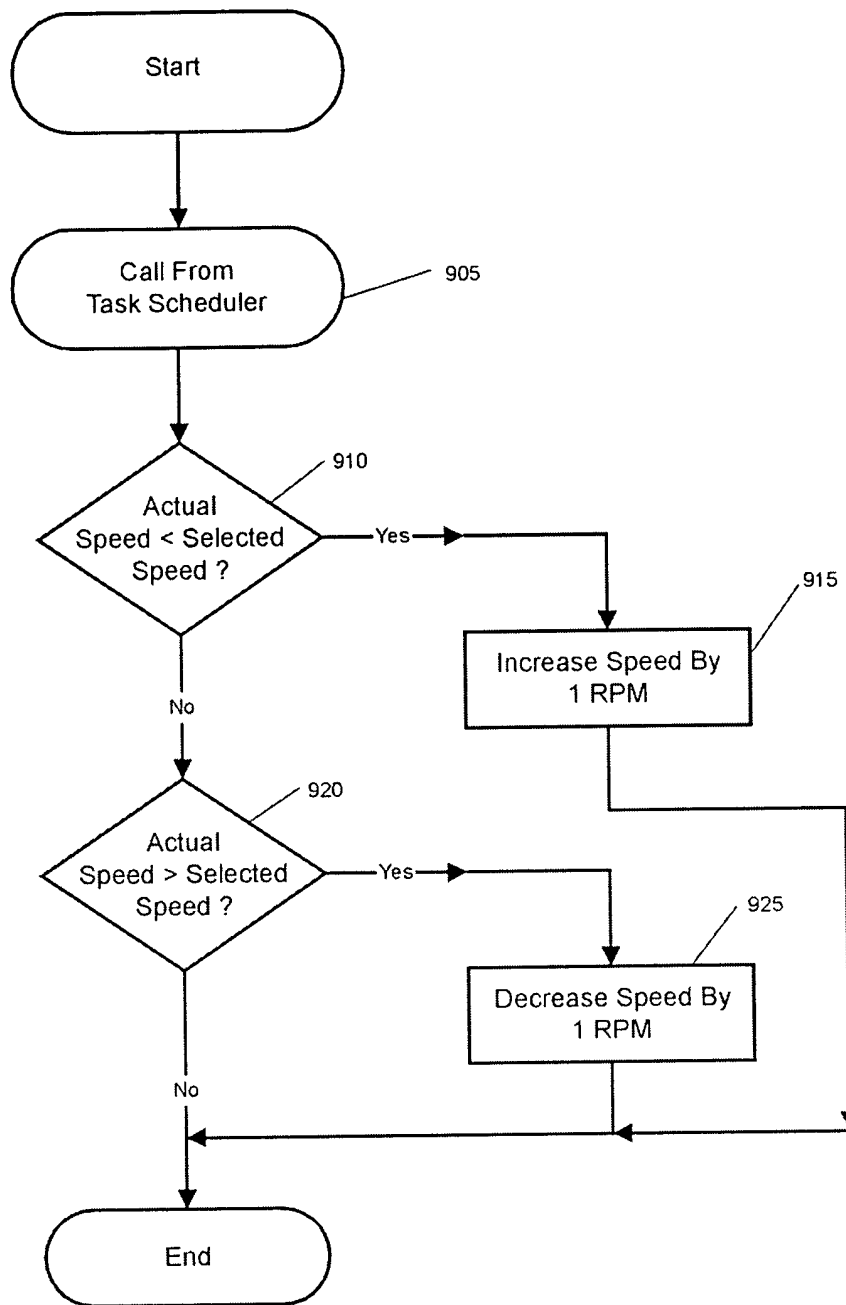


FIGURE 9

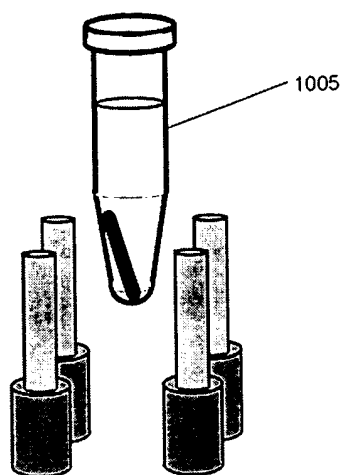


FIGURE 10A

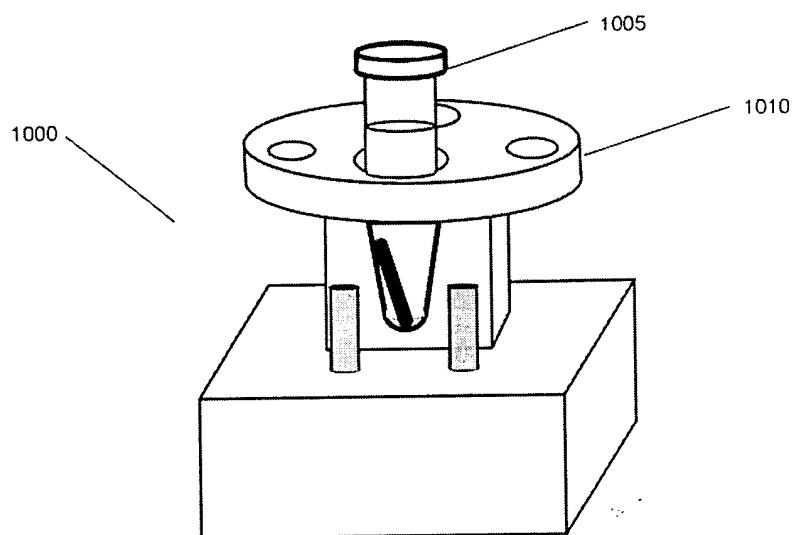


FIGURE 10B

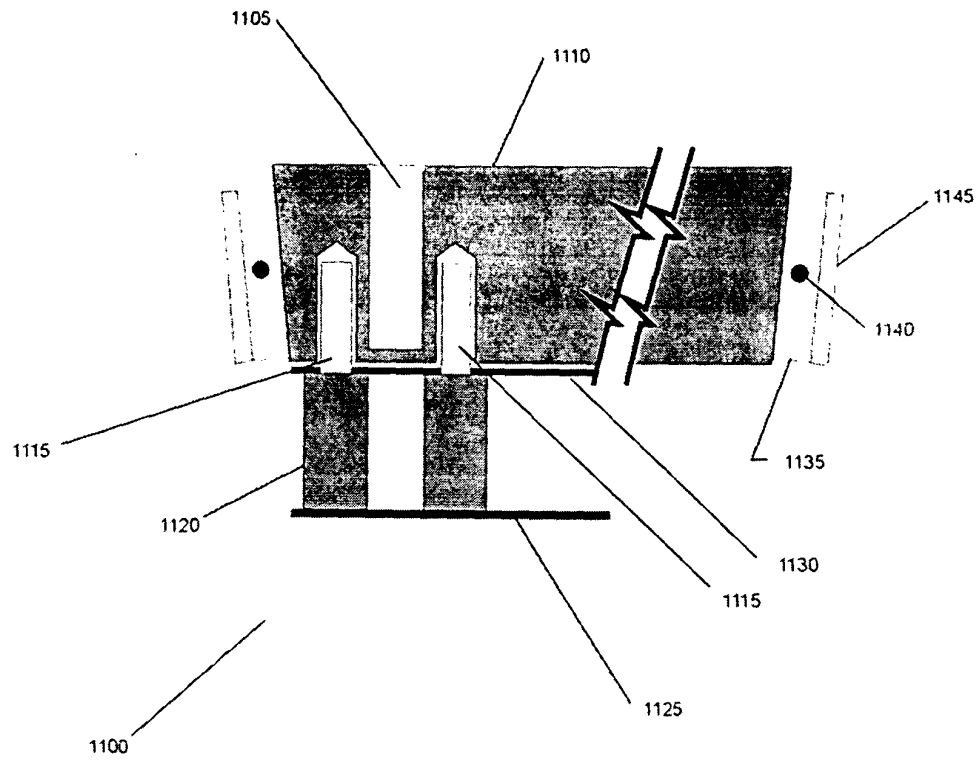


FIGURE 11A

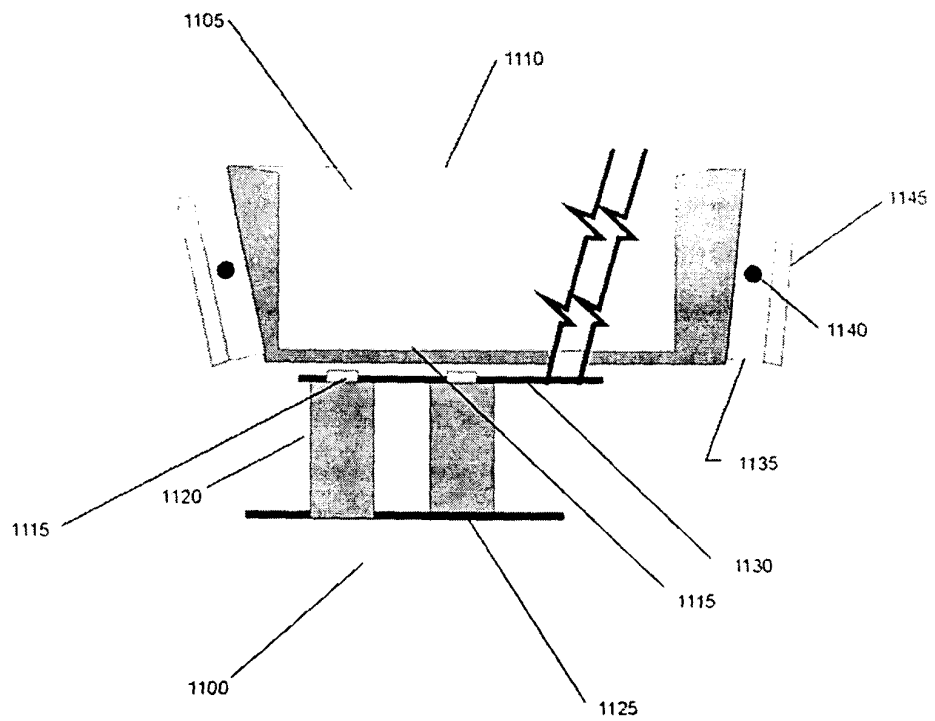


FIGURE 11B

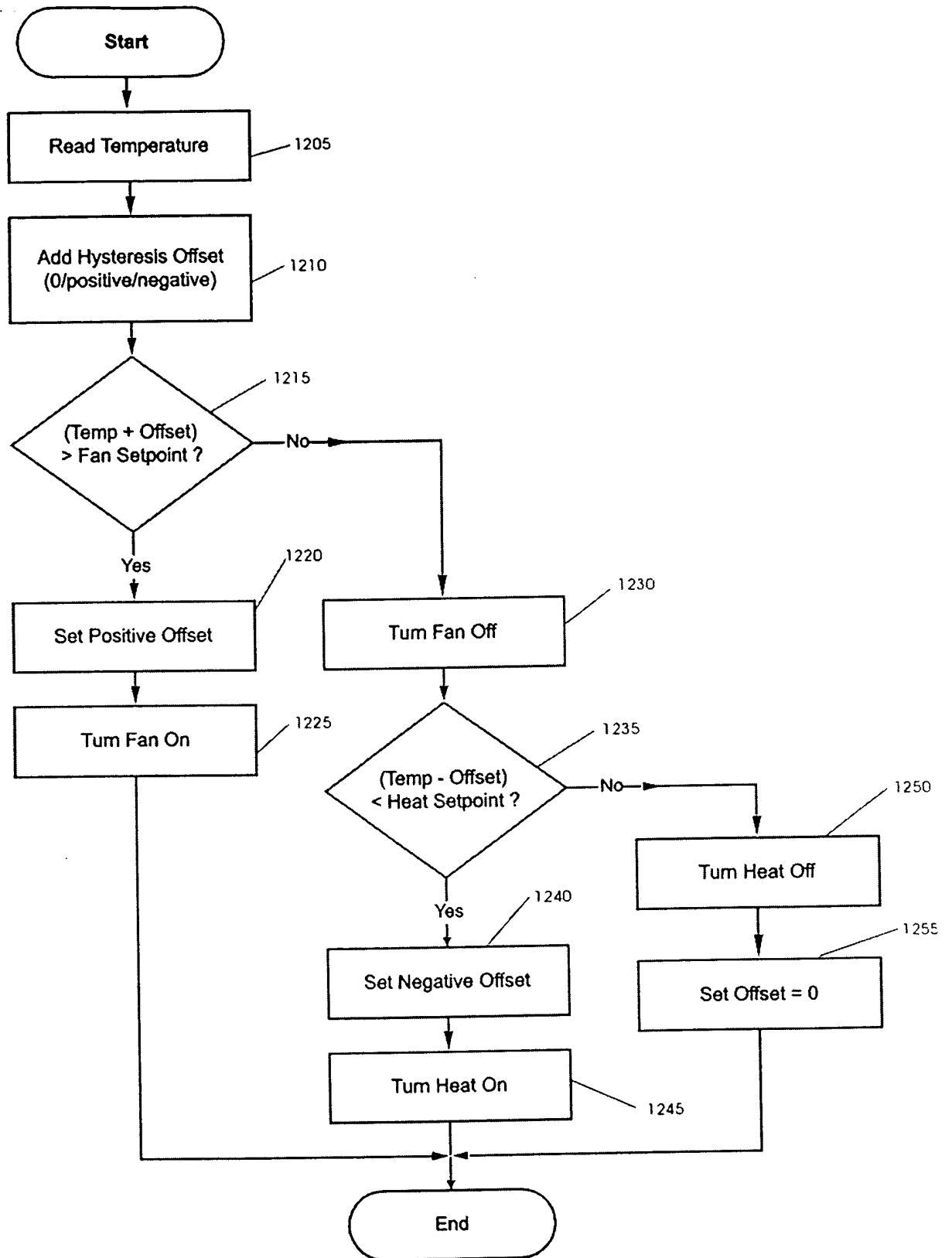


FIGURE 12

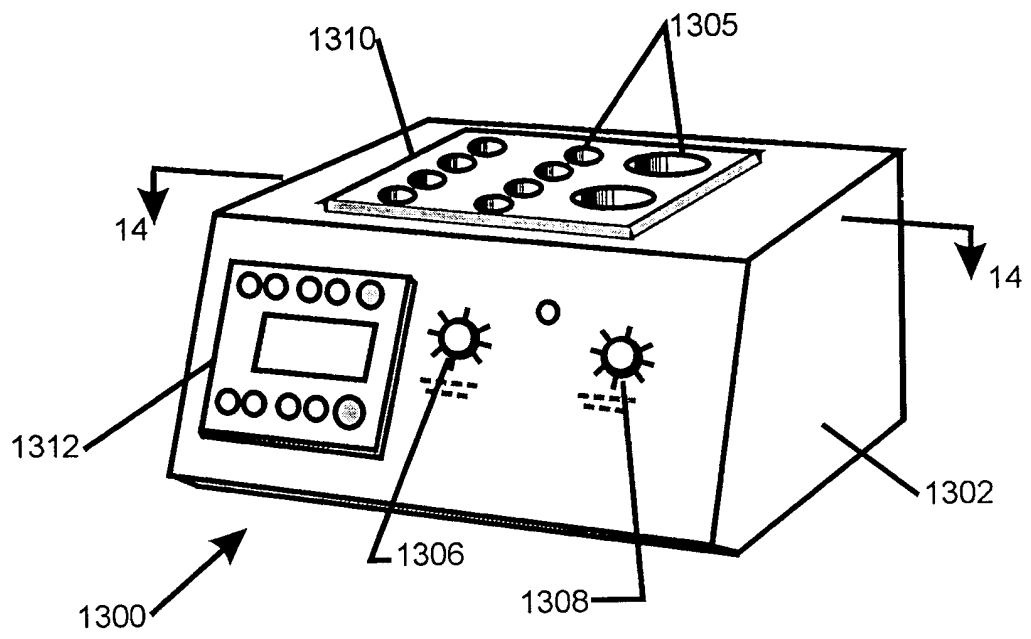


FIG. 13

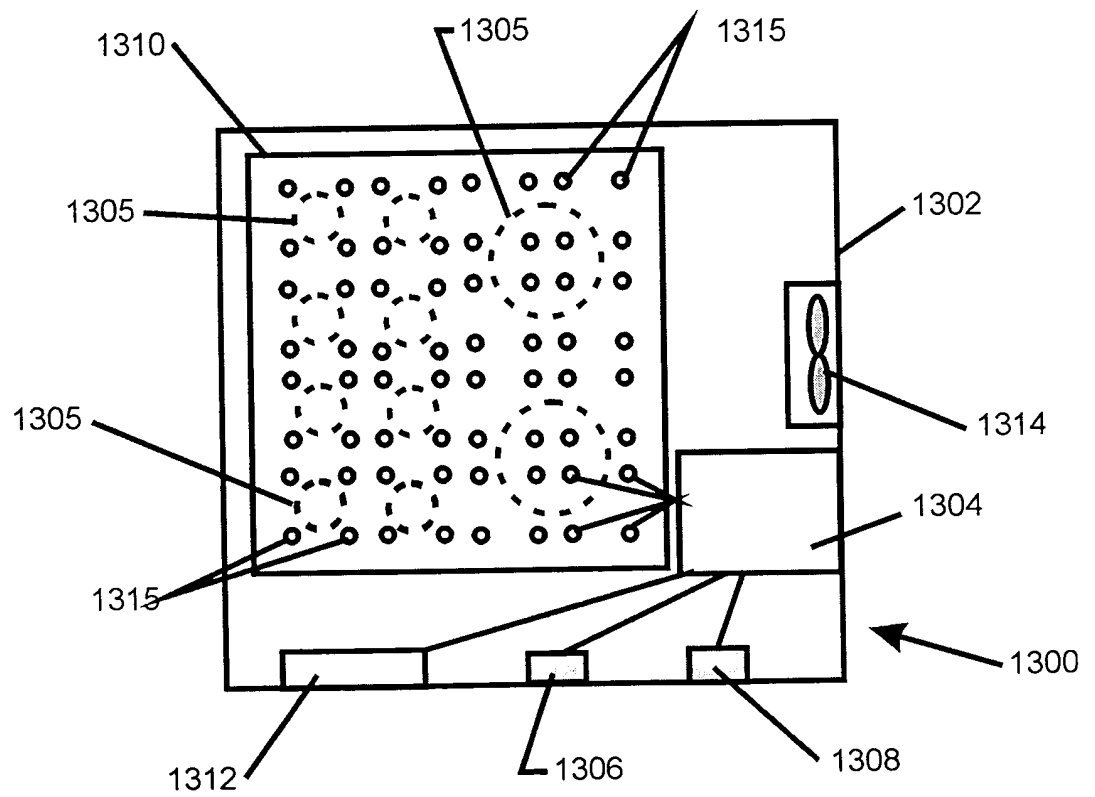


FIG. 14

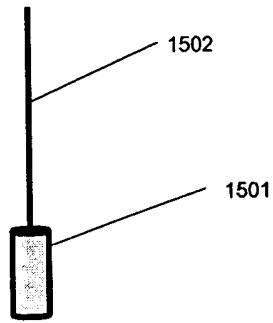


FIGURE 15A

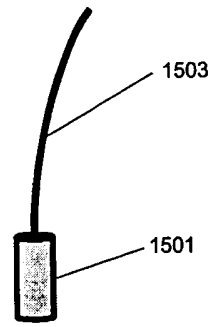


FIGURE 15B

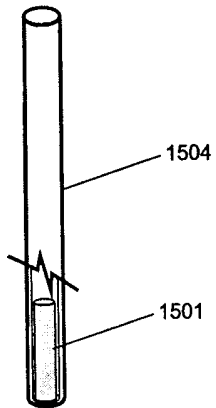


FIGURE 15C

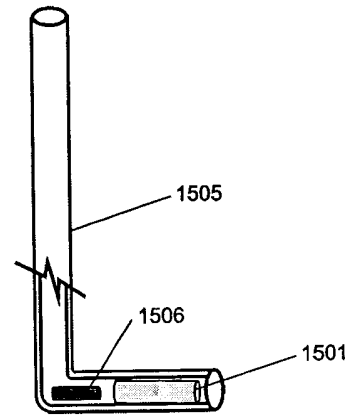


FIGURE 15D

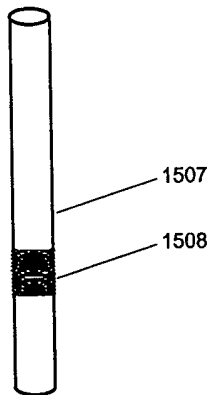


FIGURE 15E

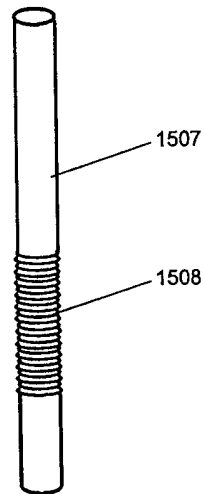


FIGURE 15F

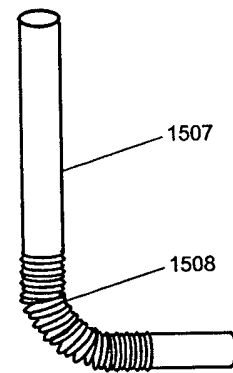


FIGURE 15G

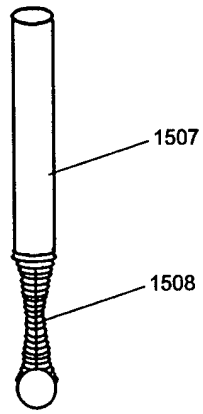


FIGURE 15H